THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 23

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte MASCO VT, INC.

Appeal No. 97-2274
Control No. 90/004,016[1]

HEARD: JANUARY 12, 1998

Before GARRIS, WARREN and OWENS, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] Reexamination proceeding for U.S. Patent No. 4,609,564, issued September 2, 1986, based on Application 06/494,302, filed May 13, 1983. According to appellants, the application is a continuation-in-part of 06/358,186, filed March 15, 1982, now Patent No. 4,438,153, issued March 20, 1984, which is a continuation-in-part of 06/237,670, filed February 24, 1981, now Patent No. 4,351,855, issued September 28, 1982.

This is an appeal from the examiner's final rejection of claims 1-6, which are all of the claims in this reexamination proceeding. Claim 1 is illustrative and reads as follows:

1. A method of depositing a material upon a substrate which comprises the steps of:

juxtaposing an elongated electrode composed of at least one component of said material with a surface of said substrate along the length of said electrode;

evacuating the space in which said electrode is juxtaposed with said substrate to at most 10^{-5} torr and maintaining the pressure in said space substantially no higher than 10^{-5} torr during deposition; and

striking an electrical arc with said electrode at one end thereof at a voltage of substantially 30 to 60 volts and with a current of substantially 50 to 90 amperes to evaporate said electrode over a length thereof receding from said arc and to deposit the material evaporated from said electrode on said substrate over said length.

THE REFERENCES

MacLachlan (British patent specification)	1,257,015	Dec. 15, 1971
Sablev et al. (Sablev III)[2] (British patent specification)	1,322,670	Jul. 11, 1973

[2] During prosecution, the examiner and appellant referred to Russian patent 711,787 and British patent specification 1,322,670, respectively, as Sablev I and Sablev III.

Sablev et al. (Sablev I)[3] (Russian patent)	711,787	Oct. 7, 1980

THE REJECTIONS

Claims 1 and 4 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Sablev I. Claim 2 stands rejected under 35 U.S.C. § 103 as being unpatentable over Sablev I in view of Sablev III. Claims 3, 5 and 6 stand rejected under 35 U.S.C. § 103 as being unpatentable over Sablev I in view of MacLachlan.

OPINION

We have carefully considered all of the arguments advanced by appellant and the examiner and agree with appellant that the aforementioned rejections are not well founded. Accordingly, these rejections will be reversed.

Regarding appellant's claim 1, appellant does not dispute that Sablev I discloses a method for depositing a material upon a substrate by juxtaposing an elongated electrode composed of at least one component of the material with a surface of the substrate along the length of the electrode,

[3] Citations herein are to the English translation of this reference, which is of record.

evacuating the space in which the electrode is juxtaposed with the substrate to at most 10^{-5} torr and maintaining the pressure in the space at substantially no higher than 10^{-5} torr during deposition, and striking an electrical arc with the electrode at one end thereof at a voltage of substantially 30 to 60 volts and with a current of substantially 50 to 90 amperes to evaporate the electrode (col. 3, second paragraph; col. 4, third and fourth full paragraphs; Figure 1). Appellant argues that appellant makes use of the natural tendency of an arc evaporation spot to recede along an elongated electrode from the end of the electrode at which the arc initially is struck, to evaporate the cathode over its length, whereas Sablev I (col. 4) uses solenoid 4, which surrounds the electrode, to magnetically confine the arc evaporation spots (brief, pages 8-9).

The examiner, in his answer, does not address the limitation in appellant's claim 1 which requires that the evaporation recede from the arc. The examiner's failure to do so is improper because all limitations must be given effect when determining what subject matter is defined by a claim. *See In re Angstadt*, 537 F.2d 498, 501, 190 USPQ 214, 217 (CCPA

1976); *In re Geerdes*, 491 F.2d 1260, 1262-63, 180 USPQ 789, 791 (CCPA 1974); *In re Wilder*, 429 F.2d 447, 450, 166 USPQ 545, 548 (CCPA 1970). The examiner argues that appellant fails to identify limitations which Sablev I does not disclose (answer, page 6). This argument is not well taken because the examiner has the initial burden of establishing a *prima facie* case of anticipation by pointing out where all of the claim limitations appear in a single reference, and the examiner has not done so. *See In re Spada*, 911 F.2d 705, 15 USPQ2d 1655, 1657 (Fed. Cir. 1990); *In re King*, 801 F.2d 1324, 1327, 231 USPQ 136, 138-39 (Fed. Cir. 1986). Furthermore, appellant identifies what appellant considers to be a limitation not disclosed in Sablev I, i.e., the arc evaporation spot receding along the length of the cathode (brief, page 9), and the examiner provides no response.

We interpret the terms in appellant's claims in view of appellants' specification and the prosecution history, *see Smithkline Diagnostics Inc. v. Helena Laboratories Corp.*, 859 F.2d 878, 882, 8 USPQ2d 1468, 1471 (Fed. Cir. 1988), *ZMI Corp. v. Cardiac Resuscitator Corp.*, 844 F.2d 1576, 1580, 6 USPQ2d

1557, 1560 (Fed. Cir. 1988), as they would be construed by one of ordinary skill in the art. *See Smithkline Diagnostics Inc. v. Helena Laboratories Corp.*, 859 F.2d at 882, 8 USPQ2d at 1471; *Fromson v. Advance Offset Plate, Inc.*, 720 F.2d 1565, 1571, 219 USPQ 1137, 1142 (Fed. Cir. 1983).

Appellant's claim 1 recites that an electrical arc is struck at one end of the elongated electrode "to evaporate said electrode over a length thereof receding from said arc". We interpret this limitation, in view of appellant's specification, as meaning that the evaporation moves along the electrode in a direction away from the point at which the arc is struck (col. 8, line 66 - col. 9, line 15; Fig. 7). This interpretation is consistent with that of appellant during this reexamination proceeding (response filed June 19, 1996, page 5; brief, page 8).[4,5]

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[4] In the final rejection (paper no. 8, mailed August 7, 1996, page 5), the examiner states that Sablev I "teaches that vaporization of metal occurs over the whole working surface, which reads on a length of the electrode receding from the location of the arc". The vaporization over the whole electrode referred to in Sablev I (col. 4, fourth full paragraph) is obtained using a current of 600 amperes or more such that the whole electrode surface is covered by cathode spots. This embodiment is not within the scope of appellant's claimed invention, which is limited to a current of 50-90

Sablev I does not state that when an arc is struck at the end of consumable cathode 2 by use of ignition electrode 10, wherein the arc current is the disclosed value which falls within the range recited in appellant's claim 1, i.e., 50 amperes, and a single cathode spot is thereby formed (col. 4, fourth full paragraph), the evaporation takes place over a length of the electrode receding from the point at which the arc is struck. Thus, in order for the invention recited in appellant's claim 1 to be anticipated by Sablev I, such evaporation must be an inherent characteristic of the Sablev I method.

Establishing a *prima facie* case of inherency requires that the examiner "provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic *necessarily* flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Int. 1990).

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amperes.

[5] When the application for the patent under reexamination was examined, the examiner allowed the claims on first action without giving a reason for allowance.

The examiner has not explained, and it is not apparent, why evaporation receding from the point at which the arc is struck necessarily flows from operation of the Sablev I apparatus using an arc current of 50 amperes, which is the only current disclosed in the reference which falls within the scope of appellant's claims. At this current, there is one arc spot (col. 4, fourth full paragraph), and the reference provides no indication, as far as we can determine, that in the presence of the magnetic field which Sablev I applies (col. 4, third full paragraph), the evaporation recedes from the point at which the arc is struck. The evaporation may possibly do so, but inherency "may not be established by probabilities or possibilities. The mere fact that a certain thing *may* result from a given set of circumstances is not sufficient." *Hansgirg v. Kemmer,* 102 F.2d 212, 214, 40 USPQ 665, 667 (CCPA 1939).

For the above reasons, we find that the examiner has not carried his burden of establishing a *prima facie* case of anticipation of appellant's claims 1 and 4. The rejection of these claims under 35 U.S.C. § 102(b) therefore is reversed.

The examiner has not explained, and it is not apparent, why it would have been obvious to one of ordinary skill in the art, in view of Sablev I alone or in combination with Sablev III or MacLachlan, to carry out the Sablev I process such that the evaporation recedes from the point at which the arc is struck. Accordingly, we reverse the rejections under 35 U.S.C. § 103 of claims 2, 3 and 5, which depend from claim 1.

Appellant's apparatus claim 6 requires a means for heating the elongated electrode at the end opposite to that at which the arc is struck. The examiner argues that in view of MacLachlan, it would have been obvious to one of ordinary skill in the art to heat the Sablev I electrode to increase the rate of deposition (answer, page 6). Appellant points out (brief, page 12; substitute reply brief, pages 3-4) that the Sablev I electrode is cooled (col. 3, second paragraph) rather than heated. The examiner argues that the cooling by Sablev I appears to overcome some previously recognized problem caused by an electrode being too hot, so it would have been obvious to one of ordinary skill in the art to heat the electrode (answer, pages 7-8). The examiner has not explained, and it is not apparent, why one of ordinary skill in the art who

desires a cooled electrode would heat it. We therefore reverse the rejection of claim 6.

DECISION

The rejection under 35 U.S.C. § 102(b) of claims 1 and 4 as being anticipated by Sablev I, and the rejections under 35 U.S.C. § 103 of claim 2 over Sablev I in view of Sablev III and of claims 3, 5 and 6 over Sablev I in view of MacLachlan, are reversed.

REVERSED

BRADLEY R. GARRIS Administrative Patent Judge	)	
CHARLES F. WARREN Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
TERRY J. OWENS Administrative Patent Judge	)	

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